

IN THE CLAIMS:

Pending Claims

Claim 1 (Currently Amended): A method for processing annotated images comprising the following steps:

removing one or more textual annotations from a grayscale annotated image to derive a first modified image;

processing said first modified image using an algorithm to derive a processed image; and

merging the removed one or more textual annotations with said processed image to derive a merged image.

Claim 2 (Original): The method as recited in claim 1, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated image to derive said first modified image.

Claim 3 (Original): The method as recited in claim 2, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 4 (Currently Amended): The method as recited in claim 1, wherein the merged textual annotations occupy the same pixels in said merged image that the removed textual annotations originally occupied in said annotated image.

Claim 5 (Original): The method as recited in claim 1, wherein said removing step comprises morphology-based processing and thresholding.

Claim 6 (Original): The method as recited in claim 1, wherein said removing step comprises the following: grayscale erosion of said annotated image using a structuring element to

derive an eroded image; thresholding said eroded image to derive a first binary mask; dilation of said first binary mask using said structuring element to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated image to derive said first modified image.

Claim 7 (Original): The method as recited in claim 6, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 8 (Original): The method as recited in claim 1, wherein said removing step comprises thresholding and pixel connectivity-based analysis.

Claim 9 (Original): The method as recited in claim 1, wherein said removing step comprises the following: thresholding the annotated image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated image to derive said first modified image.

Claim 10 (Original): The method as recited in claim 9, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 11 (Original): The method as recited in claim 1, wherein said removing step comprises the following: thresholding the annotated image to derive a first binary mask;

using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; removing holes from said second binary mask to derive a third binary mask; and multiplying said third binary mask and said annotated image to derive said first modified image.

Claim 12 (Original): The method as recited in claim 1, wherein said processing step comprises filtering to enhance said first modified image.

Claim 13 (Currently Amended): A computer system programmed to perform the following steps:

removing one or more textual annotations from a grayscale annotated image to derive a first modified image;

processing said first modified image using an algorithm to derive a processed image; and

merging the removed one or more textual annotations with said processed image to derive a merged image.

Claim 14 (Original): The system as recited in claim 13, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated image to derive said first modified image.

Claim 15 (Original): The system as recited in claim 14, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 16 (Original): The system as recited in claim 13, wherein said removing step comprises the following: grayscale erosion of said annotated image using a structuring element to derive an eroded image; thresholding said eroded

image to derive a first binary mask; dilation of said first binary mask using said structuring element to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated image to derive said first modified image.

Claim 17 (Original): The system as recited in claim 16, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 18 (Original): The system as recited in claim 13, wherein said removing step comprises the following: thresholding the annotated image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; and multiplying said second binary mask and said annotated image to derive said first modified image.

Claim 19 (Original): The system as recited in claim 18, wherein said merging step comprises the following: inverting said second binary mask to derive a third binary mask defining an annotation region; multiplying said third binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image to derive said merged image.

Claim 20 (Original): The system as recited in claim 13, wherein said removing step comprises the following: thresholding the annotated image to derive a first binary mask; using 8-connected analysis to reject segments smaller than a prespecified size from said first binary mask to derive a second binary mask defining one or more image regions; removing holes from said second binary mask to derive a third binary

mask; and multiplying said third binary mask and said annotated image to derive said first modified image.

Claim 21 (Original): The system as recited in claim 13, wherein said processing step comprises filtering to enhance said first modified image.

Claim 22 (Currently Amended): A method for processing annotated images comprising the following steps:

removing the hue and saturation components from a HSV color annotated image to derive a brightness component annotated image;

removing one or more textual annotations from the brightness component annotated image to derive a first modified image;

processing said first modified image using an algorithm to derive a processed image; and

merging the removed one or more textual annotations and the removed hue and saturation components with said processed image to derive a merged image.

Claim 23 (Original): The method as recited in claim 22, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated image to derive said first modified image.

Claim 24 (Original): The method as recited in claim 23, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image with said removed hue and saturation components to derive said merged image.

Claim 25 (Original): The method as recited in claim 22, further comprising the step of converting an RGB color annotated image from RGB color space to HSV color space to derive said HSV color annotated image.

Claim 26 (Currently Amended): A computer system programmed to perform the following steps:

removing the hue and saturation components from an HSV color annotated image to derive a brightness component annotated image;

removing one or more textual annotations from said brightness component annotated image to derive a first modified image;

processing said first modified image using an algorithm to derive a processed image; and

merging the removed one or more textual annotations and the removed hue and saturation components with said processed image to derive a merged image.

Claim 27 (Original): The system as recited in claim 26, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated image to derive said first modified image.

Claim 28 (Original): The system as recited in claim 27, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a second modified image; and merging said second modified image and said processed image with said removed hue and saturation components to derive said merged image.

Claim 29 (Original): The system as recited in claim 26, further programmed to perform the step of converting an

RGB color annotated image from RGB color space to HSV color space to derive said HSV color annotated image.

Claim 30 (Currently Amended): A computerized image enhancement system programmed to perform the following steps:

receiving a grayscale annotated image;

removing one or more textual annotations from said annotated image to derive a first modified image;

processing said first modified image using an algorithm to derive an enhanced image; and

merging the removed one or more textual annotations with said enhanced image to derive an annotated enhanced image.

Claim 31 (Original): The system as recited in claim 30, wherein said removing step comprises the following: deriving a first binary mask defining one or more image regions; and multiplying said first binary mask and said annotated image to derive said first modified image.

Claim 32 (Original): The system as recited in claim 31, wherein said merging step comprises the following: inverting said first binary mask to derive a second binary mask defining one or more annotation regions; multiplying said second binary mask and said annotated image to derive a second modified image; and merging said second modified image and said enhanced image to derive said annotated enhanced image.